



An Energy Efficiency Workshop & Exposition

Palm Springs, California

Please be courteous to our speakers



***Turn off all cell phones
and
Set pagers to vibrate***





An Energy Efficiency Workshop & Exposition

Palm Springs, California

Managing Energy with MSE2000 at the US Postal Service; Atlanta P&DC

Joshua Long

Georgia Institute of Technology

Energy & Environmental Mgt. Center (EEMC)

Josh.long@edi.gatech.edu

Phone: (404) 894-3588





Motivation for Energy Management at the US Postal Service

- ❑ 640 million pieces of mail each day
- ❑ 38,000 local post offices and P&DC's
- ❑ \$422 million in energy annually
- ❑ EPACT Status: 20.5% energy reduction from 1985 baseline as of 2000

- ❑ Goal: 35% by 2010... Can they do it?



Planning for 2010

- Southeast Area turns to MSE 2000
 - A management system for energy

- Georgia Tech formulated MSE 2000
 - Echo's accepted systems like ISO 9000 and ISO 14000
 - Adopted by ANSI in April of 2000 as a national standard for energy



What is ANSI/MSE 2000?

- ❑ Structured *management system*
- ❑ Defined by a documented standard
- ❑ Rigid enough to provide control
- ❑ Flexible enough to adapt

Obtain Standard at:

webstore.ansi.org/ansidocstore/default.asp

Obtain MSE 2000 information at:

www.industry.gatech.edu/energy





Elements of the Standard

4.0 Requirements
4.1 Management System
4.2 Management Responsibility
4.3 Energy Planning
4.4 Equipment and Process Control
4.5 Energy Management Projects
4.6 Document Control

***MSE 2000:
A Management
System for Energy***

Adopted April 6, 2000



4.7 Energy Purchasing
4.8 Energy Monitoring and
Measuring
4.9 Corrective and Preventive
Actions
4.10 Record Keeping
4.11 Internal MSE Audits
4.12 Training



Implementing Energy Management

- Step One – Executive Commitment
 - Southeast Area and the Atlanta District commit
- Step Two – Pilot Implementation
 - Atlanta's P&DC is chosen
 - Georgia Tech's EEMC begins a 9 month implementation program to certify the site
- Step Three – Define the Energy Team and get them trained



Atlanta's P&DC

- ❑ 457,000 square feet of conditioned space
- ❑ Over \$1 million in annual utilities
- ❑ 500+ employees
- ❑ 950 million pieces processed annually
- ❑ 24/7 operation

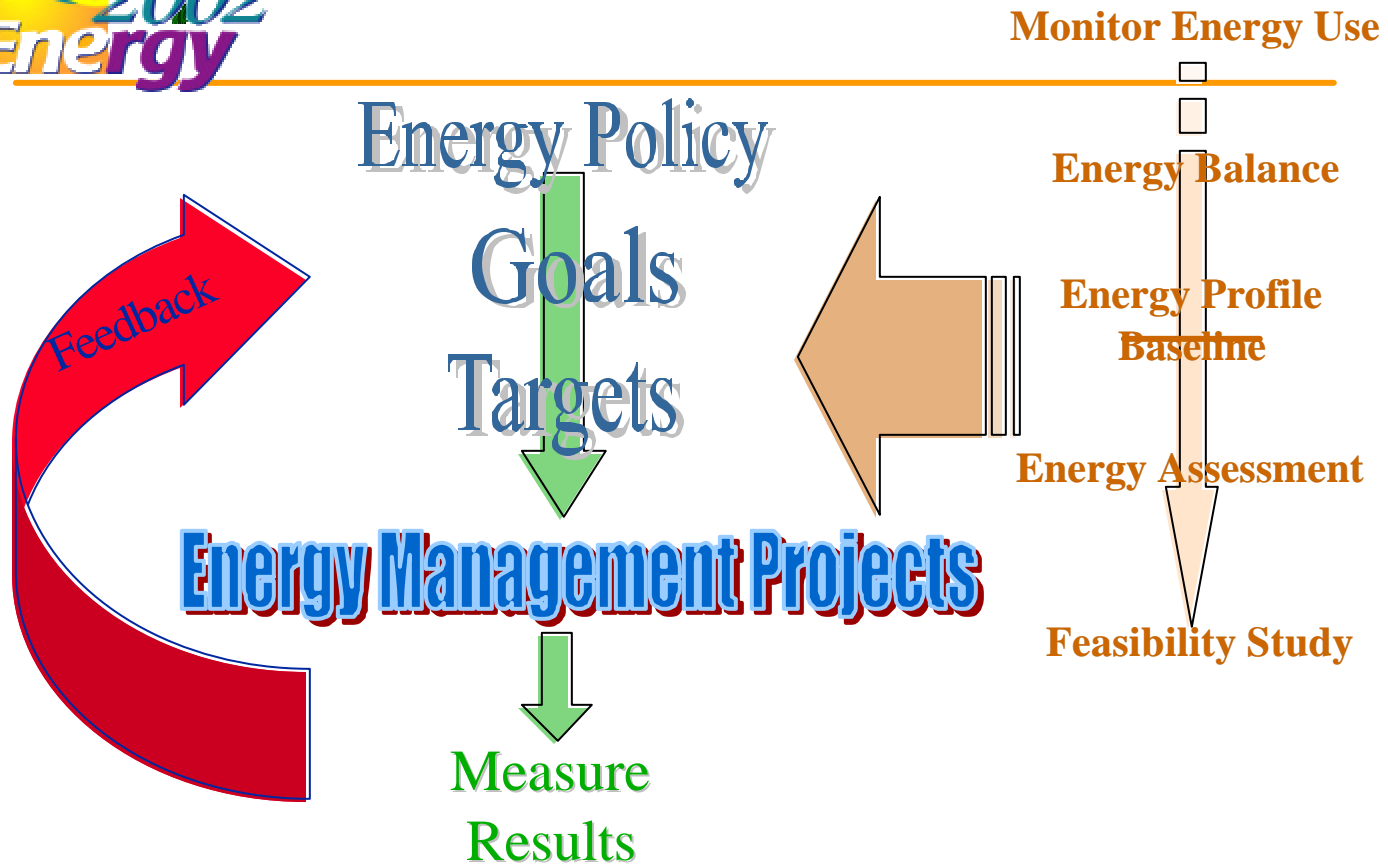


Writing an Energy Manual

- The manual is the plan of attack...
 - How to meet the requirements of MSE 2000
- Begins with an Energy Policy Statement
- Goals are formulated
- Projects are reviewed against the goals and the policy annually
- Operating Procedures added for largest uses of energy



The MSE Process





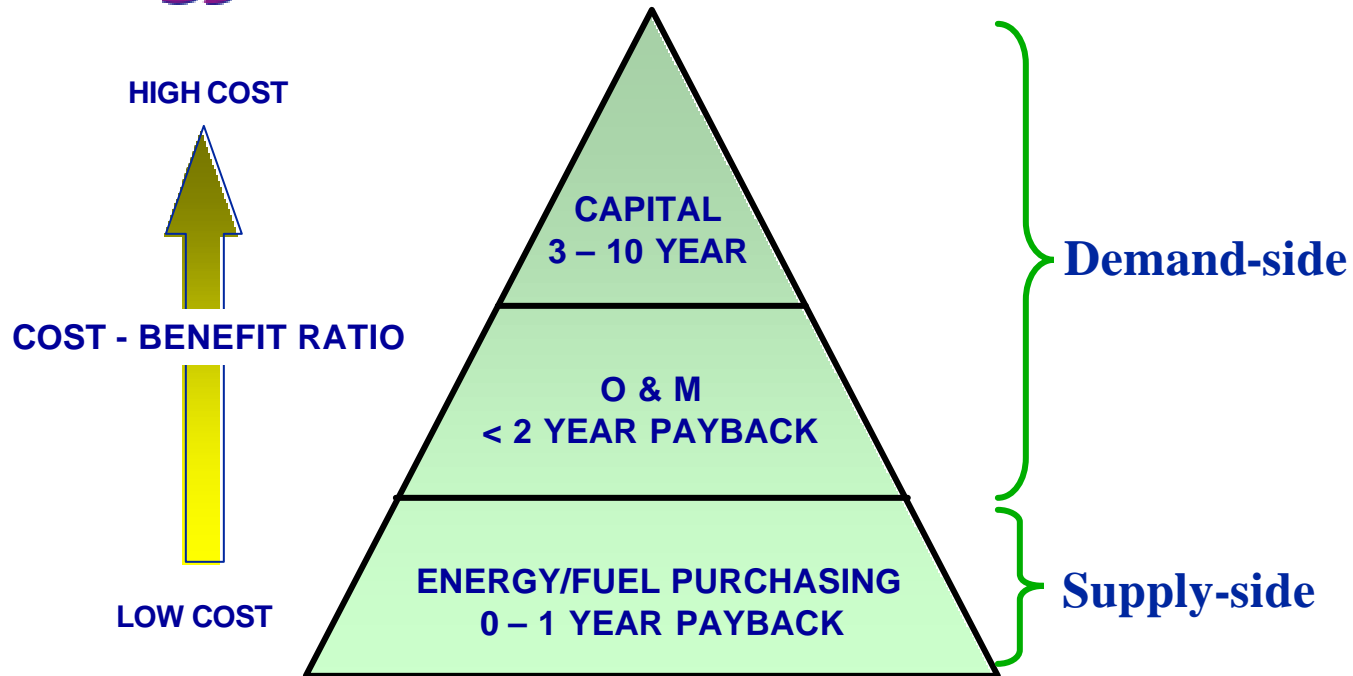
Gauging the State of Energy Use

- FEMP sponsors EEMC to complete a comprehensive Energy Assessment
 - Energy Engineers from GT's Industrial Assessment Center (IAC) conduct an assessment in March 2001
 - DOE has 26 IACs in the US that provide no cost comprehensive energy assessments to small and mid-sized manufacturers

Find Info on the IAC Program at: www.oit.doe.gov/iac



The Opportunity Hierarchy

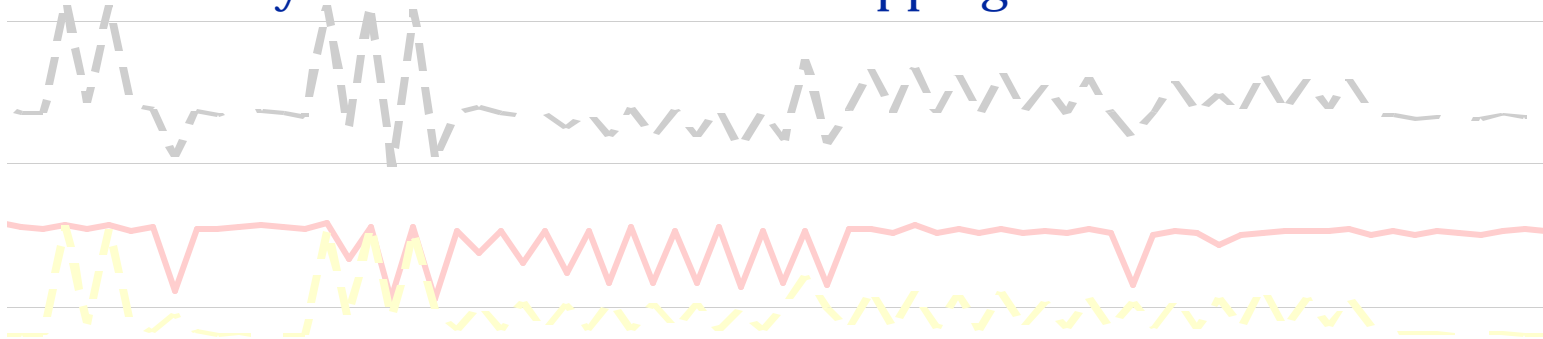


Move up the opportunity hierarchy



Air Compressor Assessment

- 1-200hp and 2-100hp screw compressors operating between 135-145 psig
- The Assessment Included:
 - Electronically Logging Operation
 - System Walk Down and Mapping





Air Compressor Opportunities

- Largest pressure requirement for an end-use device is 80 psig
 - Reducing set points to 90-100 psig saved over 200,000 kWh/yr and \$8,000
- 20 leaks were detected during walk down
 - Fixing leaks saved \$5,025 per 100 cfm of air
 - Average leak size was 7 cfm, found using ultrasonic equipment
- Turning off an unnecessary compressor saved 300,000 kWh/yr and \$12,000



HVAC Assessment

- 1-1000 ton chiller supplying 19 AHUs
- The Assessment Included:
 - Electronically Logging Space Conditions
 - System Walk Down and Mapping
 - Equipment and Controls Inventory



HVAC Opportunities

- Repair duct leaks ~\$2,630/yr savings
- Re-commission BAS controls and utilize disconnected economizers ~\$2,530/yr savings
- Repair System Leaks
 - ~\$2,890/yr saved







Sustaining the Savings

- Maintenance work order procedures and processes were modified to address costly O&M measures found in the assessment
- The MSE Team documented the new process, and initiated awareness training



Next Step – Capital Investments

- Efficient Lighting Systems
- New HVAC Equipment
 - VFD's for fans and pumps
 - DDC Control upgrades on EMS
 - New Coils
- Building Envelop Improvements



Funding acquired through ESCO

- ❑ ESCO provided up front investment for projects through a shared savings contract over 10 years
- ❑ MSE Team has the organization, ability, and resources to evaluate the performance of the projects and the ESCO implementation of them



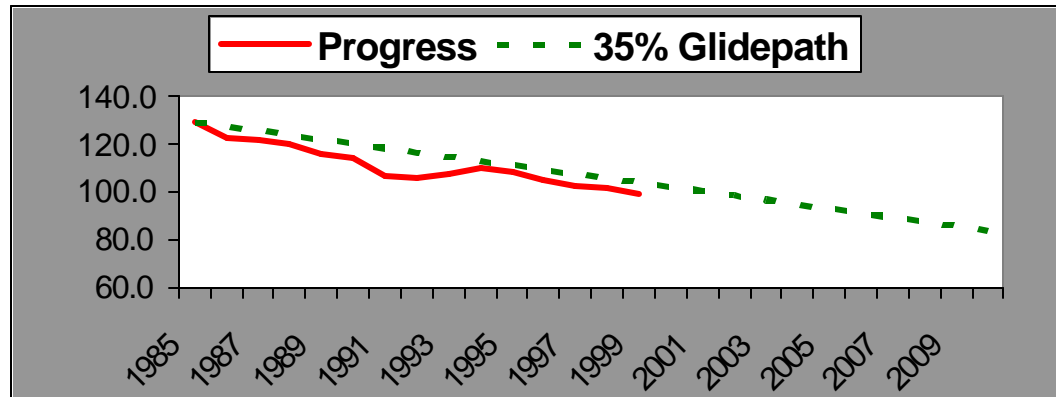
The MSE Team Successes...

- The Lights Out on Environmental Compliance...
- Combining *facility* knowledge (the team) with *technical* capability (the ESCO) to achieve the best building envelope...



Future Steps

- Develop Energy Index to Track Program



- Promote Program Success and Aid the rest of region in the implementation of MSE 2000